

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization International Bureau



(43) International Publication Date  
15 September 2005 (15.09.2005)

PCT

(10) International Publication Number  
**WO 2005/085885 A1**

(51) International Patent Classification<sup>7</sup>:

**G01R 31/06**

(74) Agents: ROBEY, James, Edward et al.; Wilson Gunn Gee, Chancery House, Chancery Lane, London WC2A 1QU (GB).

(21) International Application Number:

PCT/GB2005/000810

(22) International Filing Date: 3 March 2005 (03.03.2005)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

0404918.5

4 March 2004 (04.03.2004)

GB

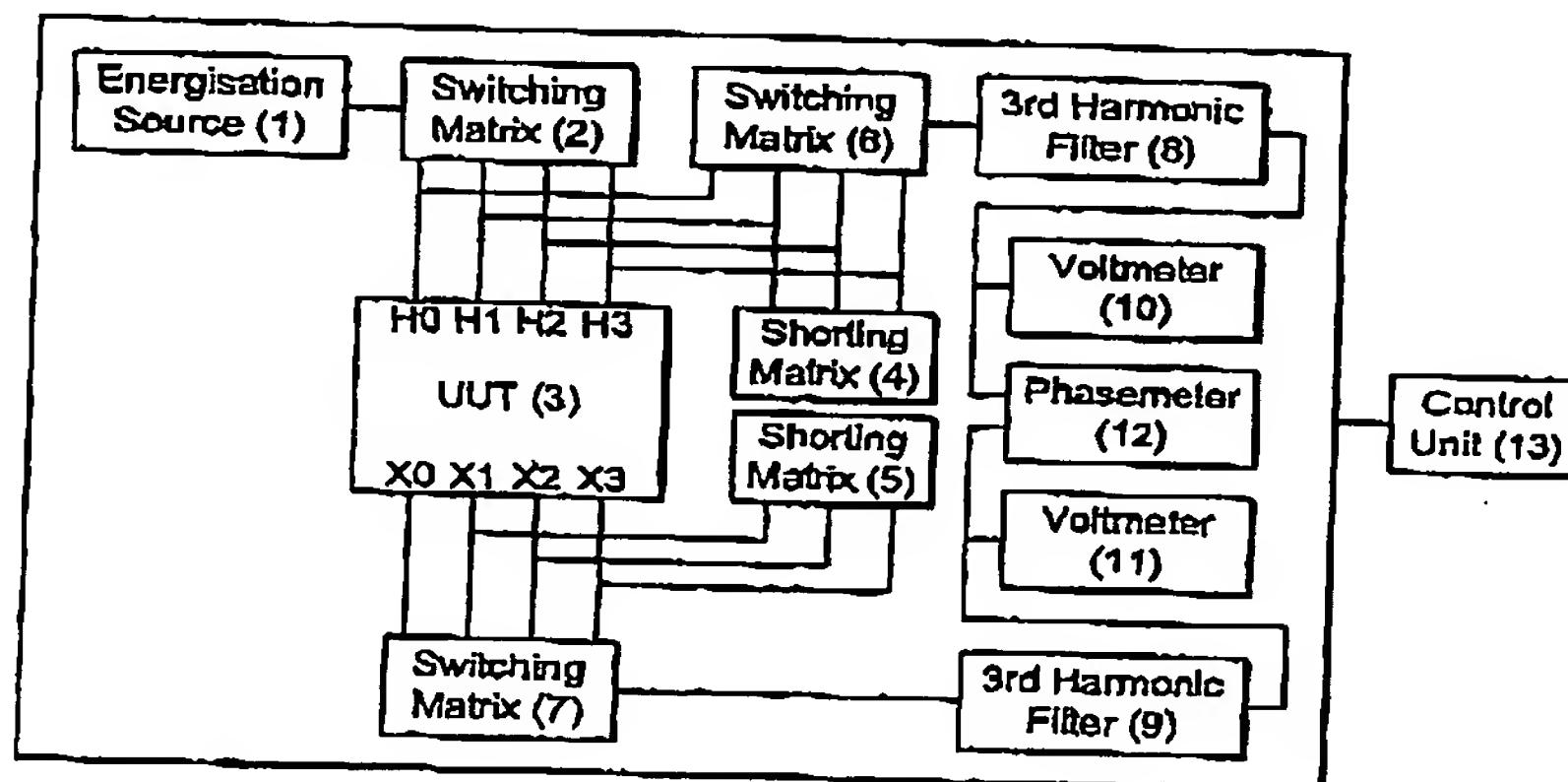
(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(71) Applicant (for all designated States except US):  
**HUBBELL LIMITED [GB/GB]**; Mitre House, 160 Aldersgate Street, London EC1A 4DD (GB).

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

*(Continued on next page)*

(54) Title: METHOD AND APPARATUS FOR CHARACTERISING A THREE PHASE TRANSFORMER USING A SINGLE PHASE POWER SUPPLY



(57) Abstract: A method and apparatus for characterising a three phase transformer (3) using a single phase power supply (1). Pairs of input terminals (H0-H3) of the transformer are sequentially energised for each energisation and the voltage between pairs of output terminals (x0-x3) of the transformer are measured. Measured voltages are processed in order to characterise the winding configuration of the transformer. Either simultaneously or subsequently the presence of neutrals on the primary and/or secondary side of the transformer are identified to enable the winding configuration to be further characterised. Subsequently any phase displacement of the transformer is determined. The apparatus comprises means (2) for selectively applying a single phase power supply (1) to pairs of terminals (H0-H3) on the transformer (3) and for measuring voltages between pairs of terminals (x0-x3) of the transformer and for measuring phase difference between the primary and secondary sides of the transformer all under automatic control of a control means (13) which includes a processing means to process measured voltages and phase differences in order to characterise the transformer.

WO 2005/085885 A1



**Published:**

— *with international search report*

*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*